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REDACTED - FOR PUBLIC INSPECTION

VIA ECFS

September 25, 2020

Marlene H. Dortch, Secretary Federal Communications Commission 445 12th Street, S.W. Washington, D.C. 20554

Re: <u>REQUEST FOR CONFIDENTIAL TREATMENT – Docket No. 03-123</u> ClearCaptions, LLC's Eighth Amendment to IP CTS Certification Application

Dear Ms. Dortch:

ClearCaptions, LLC ("ClearCaptions"), pursuant to Sections 0.457 and 0.459 of the rules of the Federal Communications Commission ("Commission"), respectfully requests confidential treatment of certain information contained in the enclosed Eighth Amendment to ClearCaptions' application for certification as a provider of Internet-based TRS (the "ClearCaptions' Eighth Amendment"). The Eighth Amendment updates the information contained in ClearCaptions' Internet-Based TRS Certification Application submitted on April 28, 2016, as amended on March 15, 2017, December 8, 2017, May 2, 2018, August 21, 2018, as updated on December 27, 2018, and as further amended on February 15, 2019, December 12, 2019, and July 29, 2020 (collectively, the "ClearCaptions Certification Application, as amended").1

An original and one copy of the ClearCaptions' Eighth Amendment in confidential form are submitted. Confidential versions also will be sent by electronic mail to Commission staff.

ClearCaptions, LLC, Internet-Based TRS Certification Application, CG Docket No. 03-123 (filed Apr. 18, 2016), ClearCaptions, LLC, Amendment To Internet-Based TRS Certification Application, CG Docket No. 03-123 (filed Mar. 15, 2017), ClearCaptions, LLC, Second Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed Dec. 12, 2017); ClearCaptions, LLC, Third Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed May 2, 2018); ClearCaptions, LLC, Fourth Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed December 27, 2018); ClearCaptions, LLC, Fifth Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed Feb. 15, 2019); Sixth Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed Dec. 12, 2019); Seventh Amendment To Internet-Based TRS Certification Application, CG No. Docket 03-123 (filed July 29, 2020).

ClearCaptions is submitting via ECFS ClearCaptions' Eighth Amendment in redacted form in Docket No. 03-123.

ClearCaptions requests confidential treatment of all information contained after the heading ***BEGIN CONFIDENTIAL*** and before the close heading ***END CONFIDENTIAL***. ClearCaptions also requests confidential treatment of the high-level network diagram showing how captions will be provisioned via ASR marked as **Exhibit 1**, and internal testing results of ClearCaptions ASR marked as **Exhibit 2** (Information contained inside the confidential heading, Exhibit 1, and Exhibit 2 collectively as the "Confidential Information"). As described below, the Confidential Information is company-specific, proprietary commercial and business information that is not customarily disclosed to the public or within the industry and is subject to Exemption 4 of the Freedom of Information Act ("FOIA").² All of the information contained inside the confidential heading has been redacted from the version electronically filed with the Commission, and the exhibits are being submitted under seal.

In support of this request and pursuant to Section 0.459(b) of the Commission's rules,³ ClearCaptions states:

1. Identification of the specific information for which confidential treatment is sought.

ClearCaptions requests confidential treatment of all information contained after the heading ***BEGIN CONFIDENTIAL*** and before the close heading ***END CONFIDENTIAL*** in the enclosed ClearCaptions' Eighth Amendment. ClearCaptions also requests confidential treatment of the high-level network diagram showing how captions will be provisioned via ASR marked as Exhibit 1, and internal testing results of ClearCaptions ASR marked as Exhibit 2. All of the information designated as the Confidential Information is proprietary commercial and business information that is not customarily disclosed to the public or within the industry and is confidential commercial information under Exemption 4 of the FOIA.⁴ This includes information about internal business operations, practices, structures, product development and relations that would cause harm to ClearCaptions if disclosed. Accordingly, pursuant to Section 0.459(a) of the Commission's rules, ClearCaptions requests that such information not be made routinely available for public inspection.

2. Identification of the Commission proceeding in which the information is submitted or a description of the circumstances giving rise to the submission.

² 47 C.F.R. § 0.457(d); 5 U.S.C. § 552(b)(4).

³ 47 C.F.R. § 0.459(b).

⁴ 5 U.S.C. § 552(b)(4).

ClearCaptions is amending its application for certification as a provider of Internet Protocol Captioned Telephone Service ("IP CTS"), a form of Internet-based telecommunications relay service, made pursuant to 47 C.F.R §§ 64.606(a)(2) and (g).

3. Explanation of the degree to which the information is commercial or financial, or contains a trade secret or is privileged.

The Confidential Information at issue is proprietary commercial information that is specific to ClearCaptions, is safeguarded from competitors, and is not made available to the public. This includes information about internal business operations, practices, product development and structures that would cause harm to ClearCaptions if disclosed. If the Confidential Information is not protected from disclosure, other relay providers could utilize the information to the detriment of ClearCaptions.

4. Explanation of the degree to which the information concerns a service that is subject to competition.

The Confidential Information concerns the provision of competitive IP CTS. The Confidential Information is being provided to the Commission to describe ClearCaptions' business and operational details.

5. Explanation of how disclosure of the information could result in substantial competitive harm.

The Confidential Information constitutes highly sensitive commercial information "which would customarily be guarded from competitors" pursuant to 47 C.F.R § 0.457. The disclosure of the Confidential Information could cause substantial competitive harm to ClearCaptions. Because other relay providers would have access to significant information regarding ClearCaptions' planned ASR capabilities, they could use the Confidential Information to ClearCaptions' disadvantage in the marketplace.

6. Identification of any measures taken by the submitting party to prevent unauthorized disclosure.

ClearCaptions routinely treats the Confidential Information as confidential and exercises significant care to ensure that such information is not disclosed to its competitors or the public.

7. Identification of whether the information is available to the public and the extent of any previous disclosure of the information to third parties.

ClearCaptions does not make the Confidential Information available to the public. This Confidential Information has not been previously disclosed to third parties, except where required by the Commission and the TRS Fund Administrator, each of whom protect the confidentiality of such submissions.

8. Justification of the period during which the submitting party asserts that the material should not be available for public disclosure.

ClearCaptions requests that the Confidential Information be treated as confidential on an indefinite basis as it cannot identify a date certain on which this information could be disclosed without causing competitive harm to ClearCaptions.

9. Any other information that the party seeking confidential treatment believes may be useful in assessing whether its request for confidentiality should be granted.

The Confidential Information contains proprietary commercial information that ClearCaptions will safeguard as necessary.

Should you have any questions concerning the foregoing request, please contact the undersigned.

Respectfully submitted,

/s/ Tamar Finn

Tamar Finn

Counsel ClearCaptions, LLC

cc (via email): Eliot Greenwald

Bob Aldrich Michael Scott

TRSreports@fcc.gov

Before the FEDERAL COMMUNICATIONS COMMISSION Washington, D.C. 20554

In the Matter of)
Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities) CG Docket No. 03-123
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EIGHTH AMENDMENT TO INTERNET-BASED TRS CERTIFICATION APPLICATION

Pursuant to Section 1.65 of the Commission's rules, ¹ ClearCaptions, LLC ("ClearCaptions") submits this Eighth Amendment to ClearCaptions' pending application for certification as a provider of Internet-based telecommunications relay service ("iTRS") (the "Application") submitted on April 18, 2016 and amended on March 15, 2017, December 8, 2017, May 2, 2018, August 21, 2018, updated on December 27, 2018, and further amended on February 15, 2019, December 10, 2019 and July 2020.²

I. INTRODUCTION

This Eighth Amendment updates the Application to include an automatic speech recognition ("ASR") platform that ClearCaptions intends to provide as part of its Internet Protocol Captioned Telephone Service ("IP CTS") service and products. Based in part on the test results produced by the National Test Lab (MITRE), the Commission granted full ASR certification to new IP CTS providers Clarity and MachineGenius, 3 reaffirming its determination that ASR is an

47 C.1 .1C. § 1.03

¹ 47 C.F.R. § 1.65.

² See ClearCaptions, LLC, Internet-Based TRS Certification Application, CG Docket No. 03-123 (Apr. 18, 2016).

³ In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket No. 03-123, Memorandum Opinion and Order (rel. June 4, 2020) ("Clarity Order); In the Matter of Telecommunications Relay Services and Speech-to-Speech Services for Individuals with

appropriate replacement to a live Communications Assistant ("CA") for the purposes of generating captions.⁴ ClearCaptions has developed an ASR solution with a Word Error Rate ("WER") that initial, internal tests show is substantially at parity with the two providers already granted ASR certification.⁵ As such, ClearCaptions seeks approval for the use of ASR in its daily operations. The Company does not plan to implement full ASR immediately upon receiving ASR certification but intends to introduce ASR as conditions warrant. Given that the Commission's ASR Certification grants to date have not limited the providers' ability to use ASR for less than 100% of the providers' customers and calls, ClearCaptions seeks similar approval to give it flexibility to determine when and how quickly to introduce and use ASR in its IP CTS service offerings.

ClearCaptions has a proven and certified capability of providing captions by CA and will transition to ASR in the best interest of consumers, employees, and contractors over time. This Eighth Amendment demonstrates that introduction of ASR into the Company's existing services and processes will meet all applicable mandatory minimum standards. ClearCaptions requests that the Commission act expeditiously to approve its ASR application.

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Hearing and Speech Disabilities, CG Docket No. 03-123, Memorandum Opinion and Order (rel. May 5, 2020) ("MachineGenius Order").

⁴ Misuse of Internet Protocol (IP) Captioned Telephone Service; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, CG Docket Nos. 13-24 and 03-123, Report and Order, Declaratory Ruling, Further Notice of Proposed Rulemaking, and Notice of Inquiry, 33 FCC Red 5800, 5835, para. 64 (2018) (2018 ASR Declaratory Ruling) (noting that applications for certification to provide ASR-based IP CTS may be granted on a conditional basis).

⁵ FCC Telecommunications Relay Services Project, IP CTS Device Recurring Testing: Prospective IP CTS Provider (Clarity) Assessment at 4 (May 4, 2020), CG Docket No. 03-123 (filed June 2, 2020) ("Clarity Assessment"); FCC Telecommunications Relay Services Project, IP CTS Device Recurring Testing: Prospective IP CTS Provider (MachineGenius) Assessment (April 29, 2020), CG Docket No. 03-123 (filed May 1, 2020) ("MachineGenius Assessment").

II. BACKGROUND

In June 2018, the Commission decided that "the *provision of ... IP CTS using ASR* to generate captions is a form of relay service" and authorized the Bureau "to review and approve applications for certification *to provide IP CTS by means of ASR* in whole or in part[.]"

On August 1, 2019, ClearCaptions informed the Commission that it planned to test the accuracy and reliability of ASR and customers would not experience any changes to their service during the test period. As ClearCaptions explained, during the test period, ClearCaptions would not be providing IP CTS via use of ASR because the captions generated by ASR would not appear on the customers' end points (phone or app). ClearCaptions used the ASR test period for research, development and planning purposes in connection with ClearCaptions' future use of ASR to caption calls for its customers.

With this Eighth Amendment, ClearCaptions seeks authority to *provide* IP CTS via use of ASR in whole or in part.

⁶ Misuse of Internet Protocol (IP) Captioned Telephone Services; Telecommunications Relay Services and Speechto-Speech Services for Individuals with Hearing and Speech Disabilities, Report and Order, Declaratory Ruling, Further Notice of Proposed Rulemaking, and Notice of Inquiry, CG Docket Nos. 13-24 and 03-123, 33 FCC Red 5800, 5827, ¶48 (2018) ("2018 ASR Declaratory Ruling") (emphasis added).

⁷ *Id.* 32 FCC Rcd at 5832, at ¶ 60 (emphasis added).

⁸ Letter from Tamar Finn, Counsel to ClearCaptions, LLC to Marlene H. Dortch, Secretary, FCC, CG Docket No. 13-24, 03-123 (filed August 1, 2019).

III. ASR DEPLOYMENT

ClearCaptions intends to introduce ASR as a replacement for a CA. ClearCaptions will not change any other process or functionality that it currently uses to provide IP CTS to its customers. For example, ClearCaptions' customer registration and certification, 911 call routing, and complaint process will not be changed with the introduction of ASR. ClearCaptions initially plans to use ASR to augment the timely delivery of service by fulfilling a limited overflow role when all live CAs are already assisting other customers. This initial introduction of ASR is intended to compliment rather than to replace CAs.

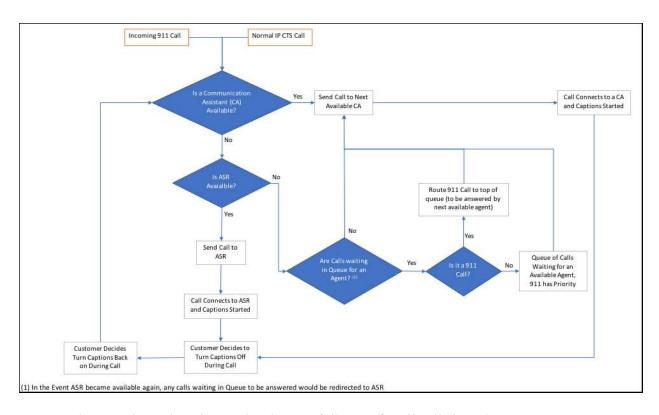
Using this approach, ClearCaptions' system has the ability to identify when there are no CAs available and the call would enter a Queue (i.e. waiting behind other calls) to be answered by the next available CA. In these scenarios, instead of the caller waiting in a Queue for an available agent, the call would be answered by the ASR system with captions being created by that ASR engine. If the next call comes in and an agent is available, that call will be sent to a live CA and not the ASR engine. This change will benefit consumers by ensuring that customers will not be required to wait for a CA to become available, but rather will result in all calls being connected to a Captioner (whether ASR or CA) in, what ClearCaptions expects, to be less than 2 seconds. ClearCaptions believes this timely delivery of Captions versus the potential to wait for a CA to become available, along with MITRE testing showing prospective IP CTS providers using ASR had a lower (better) WER than aggregated IP CTS providers using revoiced/stenography in four of five testing scenarios, 10 warrant the adoption of ASR for IP CTS.

⁹ Although ClearCaptions described a different trial of ASR in its August 1, 2019 ex parte, the Company requests certification for full ASR on individual calls, similar to the ASR applications the Bureau approved in May and June of 2020.

¹⁰ Clarity Assessment at 3 (reporting accuracy in excess of 83% in all but one testing scenario); MachineGenius Assessment at 3 (reporting accuracy in excess of 90% across four testing scenarios).

Regarding a 911 call, the Company feels there is value in establishing a quick connection to a Captioning solution (ASR or CA based) and as the Commission noted in the Clarity and MachineGenius Orders, accuracy from ASR appears to be sufficient, if not better than CAs, for test script IP CTS calls.¹¹ Approving full ASR also would support ClearCaptions in the event Covid-19 again impacts CA availability to help maintain a quick answer time if CAs become unavailable or call volume spikes beyond forecasted levels (*e.g.* the spike IP CTS providers realized at the onset of the Covid-19 Pandemic).¹²

The following high-level call flow illustrates the Company's approach towards ASR on a per-call basis.



ClearCaptions also plans to implement full ASR for all calls into the Company's Customer Care Department (CEX). ClearCaptions CEX employees are expected to speak clearly to the Company's customers and reside in a controlled environment (i.e. minimal background noise).

This set-up should result in a high-quality ASR experience. Additionally, this change enables the Company to better ensure CA resources are available to caption calls that are not CEX based (*e.g.* a 911 call).

As ClearCaptions becomes more comfortable with ASR and ASR quality, the Company will implement ASR for a higher percentage of its customers' calls.

ClearCaptions initially intends to use ***BEGIN CONFIDENTIAL*** ***END CONFIDENTIAL*** as its ASR provider. However, ClearCaptions has developed an ASR solution that can support multiple industry leading external speech to text vendors and is easily extendible as new vendors and new technologies become available. ClearCaptions will continuously test both manually and algorithmically the quality of each enabled vendor solution to ensure that it is providing the best and most accurate captions to its customers. ClearCaptions intends to migrate its existing quality management processes proportionately to ASR quality management and provide continuous quality testing of the captioning service with a focus of improving captioning quality and, in those scenarios where it does not already do so, to ultimately surpass existing CA quality with ASR.

ClearCaptions' ASR solution has been designed not to collect, store or otherwise cache personally identifiable user data or caption data. ClearCaptions' contracts with vendor partners for speech to text will mandate that they do not allow collection of, storage of, or otherwise cache personally identifiable data or captions text. ClearCaptions contracts also will ensure that these vendor partners will not use, or otherwise monitor, any audio or caption data for their personal use,

¹¹ Clarity Order at 7; Machine Genius Order at 8.

¹² Rolka Loube, Impact of Covid-19 on IP CTS Provider Costs and Demand (2020), CG Docket No. 13-24 and 03-123 at 3 (filed Sep. 8 2020). https://ecfsapi.fcc.gov/file/10908284749116/Memorandum%20-%20Analysis%20of%20Covid-19%20Impact.pdf.

be sold to other parties for marketing or other purposes, or be analyzed in any way that could violate the confidential nature of the customer's phone calls.

A high-level network diagram showing how captions will be provisioned via ASR is attached as Exhibit 1. The ClearCaptions' infrastructure for captioning has been enhanced to send the specified non-assisted user (NAU) audio media to our speech to text partner(s) and return caption text to our system. Each unique session is set up using ***BEGIN CONFIDENTIAL***

END CONFIDENTIAL and processes. When the call terminates, the session is dropped and any PII or session data is removed from our and our partners' systems.

The ClearCaptions' solution for ASR supports the display of captions on all supported ClearCaptions' provided endpoints (phone and app). All current internal processes to monitor and score call quality on a continuous basis will apply to ASR. As such, ClearCaptions' existing robust solution will ensure the best user support and captioning quality regardless of whether it is a human agent or an ASR agent.

IV. REQUESTED WAIVERS

Live Communications Assistant. Until ClearCaptions implements ASR in whole, its customers may continue to receive captioning from a live CA. To the extent necessary, and anticipating that ClearCaptions will provide ASR in whole at some point in the future, ClearCaptions seeks a waiver of the requirement for a consumer's written self-certification to state that "[t]he consumer understands that the captioning on captioned telephone service is provided by a live communications assistant who listens to the other party on the line and provides the text

on the captioned phone."¹³ If and when ClearCaptions moves to 100% ASR, this statement would be inapplicable and would provide misinformation to consumers. As the Commission has observed in the context of potential analogous professional attestations, that "portion of the attestation is only required to the extent that captions are produced in [that] manner and not exclusively through a non-CA assisted automatic speech recognition engine."¹⁴

URL Address. To the extent necessary, ClearCaptions seeks waiver of the requirement for TRS providers to submit the "URL address through which the call is initiated" to receive compensation from the TRS Fund. ClearCaptions routes its calls through a SIP trunk connection and does not have access to this information, though it is willing and able to provide all other information required by Commission Rules. The Commission has explained that the rule does not "requir[e] IP CTS providers to submit a URL address for each call," and that "the URL address requirement was intended to apply only to VRS providers" but waived the rule to extent necessary for Clarity. ClearCaptions requests the same waiver.

V. PERFORMANCE OF CLEARCAPTIONS' ASR

ClearCaptions plans to monitor continuously the effectiveness, customer satisfaction and accuracy of its ASR solution. As ASR continues to improve and as the Company discovers new ways to adopt ASR with its customer base, there will be opportunities to expand on how and when ASR is used in IP CTS.

¹³ 47 C.F.R. 64.611(j)(1)(v).

¹⁴ 2018 ASR Declaratory Ruling, 33 FCC Rcd at 5861-62, para. 133 n.366. See also, Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Memorandum Opinion and Order, DA 20-587, ¶ 32 (rel. June 4, 2020) ("Clarity Products ASR Conditional Certification").

^{15 47} C.F.R. § 64.604(c)(S)(iii)(D)(2)(X).

¹⁶ 47 C.F.R. § 64.604(c)(S)(iii)(D)(2)(i) through (ix).

¹⁷ Clarity Order at 31.

ClearCaptions obtained test scripts from MITRE to test its ASR solution. As shown in Exhibit 2, in ClearCaptions' internal testing of four scripts used by MITRE, ClearCaptions' ASR performance was substantially at parity with the MITRE test results for ASR. ClearCaptions will work cooperatively to permit MITRE to run tests on ClearCaptions' ASR solution and provide those test results to the Commission.

VI. COMPLIANCE WITH APPLICABLE MANDATORY MINIMUM STANDARDS IMPACTED BY INTRODUCTION OF ASR IN CLEARCAPTIONS' EXISTING PROCESSES¹⁸

ClearCaptions' ASR will meet or exceed the Commission's minimum service requirements. As stated above, the majority of ClearCaptions' processes will not be impacted by the introduction of ASR. The chart below shows how ClearCaptions will continue to meet those minimum standards that could be impacted by the introduction of ASR.

STANDARD	WAIVER	CLEARCAPTIONS' COMPLIANCE
Speed 47 C.F.R. § 64.604(a)(1)(iii) 47 CFR § 64.604(b)(2)(ii)		ClearCaptions has tested its ASR and consistently achieved the Commission's requirement of 60 words per minute in simulations using audio files used for stenographer tests.
		The Commission has not mandated a quantitative standard for captioning delay, instead requiring the system be "fast enough so that it keeps up with the speed of the other party's speech," and recognizing that "if captions are not keeping up with the speech (although a short delay is inevitable), at some point the provider is no longer offering relay service and the call is not compensable." The Commission has used the 60 words per minute benchmark in the absence of a quantitative standard for captioning

¹⁸ As the Commission found, ASR-based IP CTS is not subject to 47 CFR § 64.604(a)(3)(vii). See e.g., Clarity Products ASR Conditional Certification at ¶ 26; Telecommunications Relay Services and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Memorandum Opinion and Order, DA 20-485, ¶ 27 (rel. May 5, 2020) ("MachineGenius ASR Conditional Certification").

¹⁹ In the Matter of Telecommunications Relay Service and Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities, Memorandum Opinion and Order, CG Docket No. 03-123, n.26, (rel. May 5, 2020).

STANDARD	WAIVER	CLEARCAPTIONS' COMPLIANCE
Confidentiality 47 C.F.R. § 64.604(a)(2)(i)	WAITVER	delay, while acknowledging that voice recognition technology often exceeds that benchmark. ²⁰ ClearCaptions ASR experiences average captioning delay of less than 2 seconds from the time the phrase ends, and is more than capable of keeping up with the conversation of customers. The ASR solution also connects 99% of calls within less than 2 seconds (speed to answer). The ASR engine will not retain any of the captions, call audio, or call content from the call after the call has completed. Furthermore, ClearCaptions uses
		BEGIN CONFIDENTIAL ***END CONFIDENTIAL*** to send the call content to the ASR platform. ClearCaptions' contract with the ASR provider(s) will prohibit the ASR provider(s) from maintaining captions, call audio, or any call content after a call has ended. The contract will require the ASR provider(s) and its employees to maintain the confidentiality of every call.
Verbatim 47 C.F.R. § 64.604(a)(2)(ii)		This section prohibits CAs from intentionally altering a relayed conversation, and must relay all conversation verbatim unless the relay user specifically requests summarization. Because ASR is a real-time transcription software lacking the human element, this requirement is met.
		While the Commission has not mandated specific metrics for accuracy, ²¹ ClearCaptions selected its ASR provider(s) only after a rigorous assessment of the platform's ability to transcribe conversations with minimal incorrect insertions, substitutions, and deletion of words. The selection was the culmination of months of extensive evaluation and testing. ²² ClearCaptions internal testing shows that its ASR, in ideal call scenarios, is currently capable of a Word Error Pata ("WEP") that matches that of

²⁰ *Id*.

of a Word Error Rate ("WER") that matches that of

other ASR certified providers. See Exhibit 2.

²¹ *Id.* at para. 7.

²² See supra n.7.

STANDARD	WAIVER	CLEARCAPTIONS' COMPLIANCE
		ClearCaptions monitors the performance of the ASR
		platform on every call, and is in frequent dialogue
		with the ASR provider(s) to improve service on an
		on-going basis without revealing the content of the
		conversations or customer information.

VII. CONCLUSION

ClearCaptions respectfully requests that the Commission grant expeditiously the Eighth Amendment to the Application so that ClearCaptions may provide IP CTS using ASR in whole or in part.

CERTIFICATION OF CORPORATE OFFICER

I swear under penalty of perjury that I am Robert Rae, President and CEO of ClearCaptions, LLC, an officer of the above-named applicant, and that I have examined the foregoing submission, and that all information required under the Commission's rules and orders has been provided and all statements of fact, as well as all documentation contained in this submission, are true, accurate, and complete.

Robert Rae

President and Chief Executive Officer

ClearCaptions, LLC

Date: September 25, 2020

ASR Architecture			
Marc Abrams September 24, 2020			

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ClearCaptions Internal Test ASR Accuracy

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- ClearCaptions ASR Accuracy reflects the Company's best effort to mirror the test scenarios used by the National Testing Lab ("NTL") in their Prospective IP CTS Provider Assessments for Clarity and MachineGenius. There could be slight variations between these results and those eventually reported by the NTL.
- Clarity and MachineGenius Median Accuracy is calculated by subtracting the NTL's Median WER (Word Error Rate), as presented in the NTL's Prospective IP CTS Provider Assessments, from 100%.